

WORLD HEALTH  
ORGANIZATIONORGANISATION MONDIALE  
DE LA SANTÉEXPERT COMMITTEE ON THE  
INTERNATIONAL PHARMACOPOEIAWHO/Pharm/220  
21 May 1952

ORIGINAL : ENGLISH

## TENTH REPORT

The Expert Committee on the International Pharmacopoeia held its tenth session in Geneva from 23 to 30 April 1952.

Members:

Dr. H. Baggesgaard Rasmussen, Professor of Organic Chemistry, Royal Danish School of Pharmacy, Copenhagen, Denmark; Member of the Danish Pharmacopoeia Commission and of the Scandinavian Pharmacopoeia Council.

Dr. T. Canbäck, Director of the Pharmaceutical Control Laboratory, Stockholm, Sweden; Vice-Chairman of the Swedish Pharmacopoeia Commission; member of the Scandinavian Pharmacopoeia Council.

Dr. I.R. Fahmy, Bey, Professor of Pharmacognosy, Faculty of Medicine, Fouad I University, Cairo, Egypt; Secretary, Egyptian Pharmacopoeia Commission. (Vice-Chairman).

Dr. H. Flück, Professeur de Pharmacognosie à l'École Polytechnique Fédérale, Zurich, Switzerland; membre de la Commission fédérale de la Pharmacopée.

Dr. C.H. Hampshire, Secretary, British Pharmacopoeia Commission (1929 - 1950) London, United Kingdom. (Chairman).

Dr. R. Hazard, Professeur de Pharmacologie et de Matière Médicale à la Faculté de Médecine de l'Université de Paris, France; membre de la Commission de la Pharmacopée Française.

Dr. Lloyd C. Miller, Director of Revision of the Pharmacopoeia of the United States of America, New York, N.Y., U.S.A.

Dr. D. van Os, Professor of Pharmacy and Toxicology, University of Groningen, Netherlands; Chairman, Netherlands Pharmacopoeia Commission.

Secretariat:

P. Blanc, Chief, Pharmaceutical Section, Division of Therapeutic Substances, WHO

G. R. Brown, Pharmaceutical Section

Dr. Dorolle, Dr. Gear, Dr. Timmerman and Dr. Guthe attended some of the meetings.

The Deputy Director-General opened the session by welcoming members and congratulating them on the large number of favourable reviews of Volume I of the International Pharmacopoeia which appeared in the press. He further thanked the members on behalf of WHO for the large amount of work they had accomplished in office and laboratory since the previous session.

The French and English editions of Volume I of the International Pharmacopoeia had been available since November 1951 and a Spanish translation was being completed at Washington and reviewed by pharmacopoeial experts.

1. Resolutions adopted by the Executive Board at its ninth session

The Committee noted that the Executive Board at its ninth session had adopted the resolutions EB9/R/91, EB9/R/92, EB9/R/93, EB9/R/94 and EB9/R/95, giving approval to the recommendations made by the Expert Committee at its ninth session and by the Sub-Committee on Non-Proprietary Names at its third session.

1.1 Printing of the Report of the tenth session of the Expert Committee on the International Pharmacopoeia

The Deputy Director-General drew attention to the resolution of the Executive Board (EB9/R/74), and asked the Expert Committee to express an opinion on the desirability of having reports of their sessions printed in view of the fact that the work of the Expert Committee was printed in the International Pharmacopoeia. The Expert Committee agreed that as many people in various countries wished to follow their progress in the production of volumes of the pharmacopoeia and addenda, it was desirable to have the reports of the Expert Committee printed. However, as mimeographed copies would be available, printing would not be absolutely necessary if economies had to be made.

2. Agreement revising the Agreement Respecting the Unification of Pharmacopoeial Formulas for Potent Drugs, signed at Brussels on 20 August 1929

The Expert Committee recalled that at its ninth session it had expressed the opinion that in view of the differences between certain of the provisions of the International Pharmacopoeia and the Brussels agreements, it would suffice for the time being if the Brussels agreements of 1906 and 1929 were terminated, the International Pharmacopoeia consequently retaining its present status as a recommendation of the World Health Assembly. The Executive Board at its ninth session had adopted resolution EB9/R/95 requesting the Director-General to take steps necessary to conclude between states concerned a Protocol to terminate the Brussels agreements for the unification of pharmacopoeial formulas for potent drugs. The WHO had consequently prepared a draft Protocol and submitted it to signatories of the agreement for their opinion, in the hope that the matter would be settled in the near future.

3. Volume I of the International Pharmacopoeia

The Expert Committee noted that Volume I of the International Pharmacopoeia had been sent to the Member States with a circular letter including a recommendation of the Third World Health Assembly "that its provisions should be included in the national pharmacopoeias after the adoption of the said provisions by the authorities responsible for the pharmacopoeias". The circular letter also included some advice on the different ways in which the International Pharmacopoeia could be used in different countries. Already replies had been received indicating that in a number of countries the national pharmacopoeial authorities had the International Pharmacopoeia under consideration and intended to adopt its provisions as far as possible in revising their national pharmacopoeias. One Member State had signified its intention of adopting the first volume of the International Pharmacopoeia as its national pharmacopoeia. The letters received indicated that in a number of countries the provisions of the International Pharmacopoeia would be used as the basis for preparing the first

edition of their national pharmacopoeias. Other letters indicated that the International Pharmacopoeia was being made official together with other pharmacopoeias which had been official until now. The Committee was informed that the Second Pan-American Congress of Pharmacy which met in December 1951 had adopted a resolution that those countries represented in the Congress should consider the adoption of the International Pharmacopoeia. The standards of the International Pharmacopoeia are now being used for supplies of certain drugs being purchased by international agencies for use in a number of countries, thereby facilitating the protection of public health and international commerce. A large number of favourable reviews and articles on Volume I of the International Pharmacopoeia had appeared in the press, and the Expert Committee expressed its thanks to those of its members and others who had publicised the International Pharmacopoeia, and whose efforts had resulted in the work becoming accepted in their own countries and integrated in future editions of their own national pharmacopoeias.

4. Preparation of the International Pharmacopoeia, First Edition,  
Volume II

The principal object of the session was the completion of Volume II of the International Pharmacopoeia. Hence, much time was devoted to a review of monographs and appendices approved earlier in draft form and which had appeared in proofs. Some important changes were found necessary as the result of recent technical advances. For example, for Dihydrostreptomycinum, a spectrophotometric assay was provided which supplemented the biological assay. The Committee agreed that comments on the proofs of Volume II which could not be considered at the session should be examined and incorporated by the Chairman in collaboration with WHO.

In preparing drafts the Committee decided to keep to a minimum the cross references to Volume I where similar assay methods are concerned. When preparations, such as ampoules, are to be tested, the methods described should be of such sensitivity that only a few ampoules are needed. The policy of expressing all

quantities of weight as grams was reconsidered. Quantities between 0.0001 and 0.099 gram (g) will be expressed as milligrams (mg) and lesser quantities as micrograms ( $\mu$ ). This, however, will apply only to analytical methods and not to toxicology since the possibility of confusing milligrams with grams was deemed very great. The increasing use of a drug such as Cyanocobalaminum, required only in minute dosage, was recognized and the use of the symbol,  $\mu$ , for microgram was approved for expressing doses and in prescriptions.

The Committee noted that, since its ninth session, the Chairman had completed a number of monographs by correspondence. These included the tablet forms of three vitamins, ascorbic acid (vitamin C), nicotinamide and menadione (vitamin K), and the injectable forms of several salts of the antibiotic streptomycin.

#### 4.1 Penicillin

Those monographs which were completed in draft form included several groups of great therapeutic importance and value. Of especial interest were the monographs on penicillin-containing drugs ranging from the highly purified crystalline salts of penicillin to the several forms ready for injection. The Committee succeeded in solving difficulties arising from differences in the national regulations on these important preparations.

The Committee heard a statement from the Chief of the Venereal Diseases Section. Attention was given to the special needs of WHO and other United Nations specialized agencies having broad programmes for the control of diseases such as syphilis, yaws, bejel and others which yield to adequate treatment with penicillin. The Committee felt it was highly important to include specifications for the injectable oil suspension of procaine benzylpenicillin containing aluminium monostearate, which exerts therapeutic effects, into the fourth day after a single injection. The Committee received advice that the physical character of this injection determines the duration of the effect and that no satisfactory laboratory test will show this property. As a result, tests on human volunteers are required and such a procedure will be described in Volume II. The decline in use and

importance of the less pure or amorphous, non-crystalline form of penicillin was noted and it was decided not to include a monograph for it.

#### 4.2 Insulin and other Hormones

The monographs on insulin had been advanced to virtual completion since the last session and the Committee reached agreement on those for Insulin and Protamine Zinc Insulin. However, it was not possible to complete the monograph for Globin Zinc Insulin because an assay method fully adequate for international use is not yet available. The Committee was informed of current developments, which promise an early answer to this need, in the form of a stable reference standard preparation of globin zinc insulin.

The Expert Committee discussed the recent findings concerning Adrenaline, the first isolated hormone. It was found that presumably pure crystalline Adrenaline may contain up to one fifth its weight of Arterenol, a closely related substance, and the monograph adopted for the Bitartrate of Adrenaline provides a method for the detection of Arterenol and prescribes that not more than 1 per cent. of Arterenol may be present.

Since Arterenol has valuable therapeutic properties, distinct from those of Adrenaline, a monograph on the laevo form of arterenol bitartrate will appear in Volume II.

#### 4.3 Appendices

Of the numerous Appendices for Volume II approved by the Committee, several merit special mention. Those providing the necessary biological assays for Penicillin, Streptomycin, Aureomycin, Insulin and Tubocurarine Chloride conform to established methods published in several national pharmacopoeias. Appendices on spectrophotometry and fluorometry which are to be included call attention to the great advantages of these modern developments in drug analysis and will reduce unfortunate confusion in terminology which has arisen through lack of international agreement on usage. Another Appendix in Volume II will provide

a highly specific assay for water in drugs, known generally as the Karl Fischer Method. Although this is a relatively simple procedure, special precautions are needed in carrying it out which are described fully. The Committee approved the application of this method for several drugs, e.g. Procaine Benzylpenicillin, which have given difficulties heretofore by the conventional drying methods.

The Expert Committee examined a report on the problem of providing a simple, practicable definition of "colourless" as applied to solutions and other liquids. An Appendix was considered for inclusion which accomplishes this by reference to extremely dilute solutions of known chemicals. The Committee recognized that because Distilled Water must be of the highest purity, absolutely no colour can be tolerated in it; thus, it was dealt with separately. A similar report on the quality standards for the glass of containers for the International Pharmacopoeia injections was considered for inclusion as an Appendix in Volume II. The tests provide an accurate measurement of the minute amounts of the constituents of glass that dissolve into distilled water and solutions of drugs stored, for example, in sealed ampoules.

#### 4.4 Cardiolipin and Lecithin

The Expert Committee agreed that a special section of Volume II of the International Pharmacopoeia should be devoted to a description of the specifications for solutions of Cardiolipin and of Lecithin for use as reagents in the serological diagnosis of syphilis. A very substantial amount of actual laboratory work on the part of several members of the Committee, led by Professor van Os, had been necessary to complete the sections dealing with physico-chemical tests. The sections dealing with serological testing had been prepared by the Expert Committee on Biological Standardization. The complete section was being included at the request of the Sub-Committee on Serology and Laboratory Aspects of the Expert Committee on Venereal Infections and Treponematoses to ensure that the information would be made widely available.

#### 4.5 Tables of Doses for Adults and for Children

The Expert Committee approved the Tables of Doses for Adults of the International Pharmacopoeia drugs included in Volume II. The Committee expressed appreciation to Professor Hazard for completing this project with the aid and advice of physicians in several countries.

The Table of Usual Doses for Children for drugs of both Volumes I and II, which was approved by the Committee, was based on helpful information received from pediatricians and compiled with the aid of Professor A. R. Turpin. It separates young patients into two categories using age 30 months as the dividing point. The Committee noted that this is a novel but logical departure in posology and approved a preface to the table which explains the reasons for its adoption. The Committee decided against including any information on therapeutic indications in the dosage tables.

The amended text would be printed after it had been submitted to the World Medical Association to obtain their comments on substances which were not included in the previous draft table. Minor changes in the light of comments received later would be inserted on the galley proofs.

#### 4.6 International Standard Preparations

The Committee noted a statement by the Director of the Division of Therapeutic Substances, WHO, and agreed to include an Appendix in Volume II giving a table of the International Standard Preparations and the National Control Centres.

#### 5. Preparation of an Addendum to the Pharmacopoea Internationalis, First Edition

The Committee found it impossible to complete all work under way for inclusion in Volume II of the International Pharmacopoeia and in view of the earlier decision to issue an Addendum, decided to carry over the monographs and appendices that could not be completed for Volume II to the Addendum. One project

contemplated by the Committee in this connexion is to provide specifications for the reagents required for the tests and assays of Volumes I and II, since the Committee was informed that aid on this from the International Union of Pure and Applied Chemistry cannot be expected in the near future. An appendix giving directions for preparing standard buffer solutions would be prepared. The Committee agreed to prepare for the Addendum other appendices on the Determination of pH, and to define such expressions as "strongly acid", etc.

The Committee agreed to investigate the possibility of preparing monographs on capsules and coated tablets.

### 5.1 Blood Products

The Committee received a report on Preparations of Human Blood and agreed to include the following in the Addendum: Whole Human Blood, Concentrated Red Blood Corpuscles, Liquid Human Plasma (including frozen plasma), Dried Human Plasma, Liquid Human Serum, Dried Human Serum, Bovine Thrombin, Determination of ABO and Rh groups, and Standards for ABO and Rh grouping sera.

### 5.2 Suture Materials

The Committee noted that as a result of preliminary work by its Working Group on Suture Materials and by WHO in correspondence with manufacturers of these materials throughout the world, work could now be continued for the preparation of draft monographs on suture materials.

### 5.3 New Methods of Analysis

Reports had been received from members of the Expert Committee on some new methods of analysis for the International Pharmacopoeia. The Expert Committee affirmed its previous decision to include methods of analysis using simple apparatus wherever possible, but to consider new methods even when requiring special instruments where they represented a definite improvement over other methods. Members agreed to try a number of micro-methods for the analysis of some tablets and injections, with a view to including improved methods of

analysis for these monographs.

A very large amount of laboratory work would be required in preparing the specifications for reagents, new monographs, assays and appendices, for the Addendum, and in checking the existing text for the production of a second edition. For this work trained laboratory assistants would be necessary, and the Expert Committee therefore recommended that favourable consideration be given to applications from members for financial assistance in this work towards the preparation of the text.

6. Revision of the Pharmacopoea Internationalis: Preparation of a Second Edition

The Expert Committee made preparations for a second edition of the International Pharmacopoeia to be issued about five years after the publication of Volume I of the first edition, and agreed upon several general principles to guide this work. These included consideration of reducing the number of tests and assays wherever possible without sacrificing high standards of quality and purity which characterize the first edition.

The revised edition would incorporate the material in the two volumes of the first edition and addendum, and would also include monographs of a number of new substances. It was emphasized that, especially with the newer drugs, the methods of assay and testing were in a state of continued evolution and that almost complete revision of many of them would be required by the time that a second edition was produced. It would be necessary to examine carefully all the monographs of Volumes I and II and the Addendum to the first edition, in the laboratory, in order to secure a greater uniformity in the methods of testing. Through revision of the biological assays described in the first edition would be required in view of the progress which had been made in this field since Volume I was prepared, and in view also of certain comments received, some of the limit tests described would be subjected to investigation and revised. In addition any

monographs on which agreement could not be obtained at an earlier date or which could not be finalized in time for the first edition would be studied for inclusion in the second edition. All comments and suggestions regarding the first edition would be taken into consideration. For the purpose of the revision of the first edition, the contents of the International Pharmacopoeia would be divided into groups of similar monographs, assays, appendices, etc., and members of the Expert Committee agreed to examine them and to submit reports and revised drafts.

#### 7. International Non-Proprietary Names

The Expert Committee noted that in accordance with Resolution EB9/R/91 WHO had investigated the possibility of obtaining assistance from the International Union for the Protection of Industrial Property in searching to ascertain that names selected as international non-proprietary names did not conflict with existing trade-marks and in protecting these names for a period of six months after they have been sent to the Member States. It appeared that the Union could give only a limited amount of assistance in such a search and had not the means of granting an effective protection for the six months period.

For the time being circular letters enclosing the names were sent at intervals, announcing new international non-proprietary names and requesting Member States to grant protection and to accept as official non-proprietary names the international non-proprietary names selected by the Sub-Committee on Non-Proprietary Names. These circular letters seemed to constitute at present the most effective means of introducing these names and obtaining the necessary protection by the Member States. Member States were also asked to forward the information to their patent offices or any organizations, such as the pharmacopoeia commissions, dealing in their country with the introduction and protection of non-proprietary names for therapeutic substances. A number of Member States had replied to the Circular Letters indicating their intention to grant protection to the names and accept them as official non-proprietary names. As the work

advanced, further problems in connexion with the protection of non-proprietary names would have to be investigated as they arose. The Expert Committee took into consideration the reports received from members of the Expert Advisory Panel regarding general principles for a system of non-proprietary names.

The Expert Committee noted a report submitted by two members of the Expert Advisory Panel referring to the principles of nomenclature and procedure to be followed in selecting international non-proprietary names, and passed the document to its Sub-Committee on Non-Proprietary Names for consideration.

8. Preparation of an Expert Committee Session on the Control of Pharmaceutical Preparations

The Expert Committee noted that information on regulations governing the control of pharmaceutical preparations and on the methods used for control had been received from fifty-three Member States. Reports giving considerations and principles on certain aspects of the Control of Pharmaceutical Products, aims of the control of drugs, principles for setting up a system of control, labelling, methods of analytical control, poisons, etc. were being received from members of the Expert Advisory Panel, in preparation for the holding of an Expert Committee Session on the Control of Pharmaceutical Preparations in 1953. The Expert Committee agreed that the WHO should keep in close contact with the International Pharmaceutical Federation. More reports are expected from other specialists in preparation for the forthcoming session, and for the establishment of principles concerning the control of pharmaceutical preparations in the various countries, in the interest of public health and international commerce.

9. Collection of Authentic Chemical Substances

The Committee noted a recommendation of the Expert Committee on Biological Standardization and approved the principle of the establishment of a collection of authentic chemicals. It should include a number of biological

standards and of chemicals required for some of the assays described in the International Pharmacopoeia or for biological research. The Committee agreed to consider the problem at a later session, when more information and comments will have been received, particularly on the methods for the control of such chemicals.

10. Relations with other WHO Expert Committees

The Expert Committee noted that at its fifth session the Expert Committee on Biological Standardization had approved for Volume II of the International Pharmacopoeia the texts of the appendices Test for Pyrogens, and Determination of the Potency of Tubocurarine Chloride. Some further appendices had since been discussed by correspondence between the members of the Expert Committees on Biological Standardization and the International Pharmacopoeia. The Expert Committee on Biological Standardization was investigating the standardization of hyaluronidase and taeniocidal drugs, at the request of the Expert Committee on the International Pharmacopoeia.

A request received from the Expert Committee on Drugs Liable to Produce Addiction that international non-proprietary names should be provided for a number of drugs was referred to the Sub-Committee on Non-Proprietary Names.

11. Relations with other Organizations

Relations were being continued with the World Medical Association, the International Pharmaceutical Federation, the International Union of Pure and Applied Chemistry and the International Union for the Protection of Industrial Property. The Expert Committee noted with thanks the valuable suggestions and comments received from the World Medical Association on the tables of Posology for Adults and for Children, and the continued relations with the International Pharmaceutical Federation, particularly on matters connected with the control of pharmaceutical preparations.

## 12. Fellowships

The Expert Committee noted that an additional number of fellowships were being granted during 1951 and 1952 for study in accordance with the recommendations made previously by the Committee. Most of the requests received referred to the study of laboratory techniques, and many of the requests for fellowships were granted to persons in charge of control laboratories in their own country, and hence directly of help to the national health administrations. Fellowships were normally granted to senior workers for two to four months, and for up to six months to one year to younger workers having generally at least two years experience. Fellowships were available to all Member States and were not restricted to under-developed areas and were primarily granted for the purposes of strengthening health services of the countries. Fellows were placed for study in laboratories and institutions selected from a list held by the WHO, and members of the Expert Committee proposed additional places where the fellows might be sent to study.

ANNEX I

PREPARATION OF DRAFT MONOGRAPHS, REPORTS AND EXPERIMENTAL INVESTIGATIONS

Professor Baggesgaard Rasmussen agreed:

To check the graphic formulas and molecular weights in the proofs of Volume II.

To present a report prepared jointly with Professor van Os and Dr. Miller on the assay of *Compressi Diethylstilboestrolis*.

To present a report prepared jointly with Professor van Os and Dr. Miller on a method of assay for *Compressi Glycerylis Trinitratis*, proposed by Dr. Canbäck.

To present an appendix prepared jointly with Dr. Miller, on isotonic solutions.

To present a report prepared jointly with Professor Fahmy and Professor van Os on the assays of *Injectio Kyoscini Hydrobromidi* and *Injectio Lobelini Hydrochloridi*, proposed by Dr. Canbäck.

To present a report prepared jointly with Professor Fahmy, Professor van Os and Dr. Miller on the assays of *Injectio Physostigmini Salicylatis*, *Injectio Riboflavini* and *Injectio Strychnini Nitratis*, proposed by Dr. Canbäck.

To report on a particle size test for *Injectio Procaini Benzylpenicillini Aquosa*.

To provide graphic formulas and chemical names for the monographs in the Addendum and the Second Edition.

To provide graphic formulas for the lists of International Non-Proprietary Names selected by the Sub-Committee on Non-Proprietary Names.

To report on the titration of weak acids (for example, barbiturates) in non-aqueous media.

Dr. Canbäck agreed:

To present a section on colorimetry for the Appendix on Spectrophotometry and Photometry, prepared jointly with Dr. Miller.

To report on a method of assay for *Compressi Glycerylis Trinitratis*, to be investigated by Professor Baggesgaard Rasmussen, Professor van Os and Dr. Miller.

ANNEX I

To redraft the monograph on Suraminum Natricum for the Addendum to the International Pharmacopoeia.

To prepare an appendix on buffer solutions and on the determination of pH.

To prepare jointly with Professor van Os and Dr. Miller, draft specifications for reagents and a new list of reagents and test solutions for the Addendum and the Second Edition.

To report jointly with Dr. Miller on a general procedure for titrations in non-aqueous media.

Professor Fahmy agreed:

To present a report prepared jointly with Professor Flück on identification tests for tinctures.

To report jointly with Professor Baggesgaard Rasmussen and Professor van Os on the assays of Injectio Hyoscini Hydrobromidi and Injectio Lobelini Hydrochloridi, proposed by Dr. Canbäck.

To report jointly with Professor Baggesgaard Rasmussen, Professor van Os and Dr. Miller on the assays of Injectio Physostigmini Salicylatis, Injectio Riboflavini and Injectio Strychnini Nitratis, proposed by Dr. Canbäck.

Professor Flück agreed:

To report jointly with Professor Fahmy on identification tests for tinctures.

To make a comparison on the French and English editions of Volume I and to prepare a report on any discrepancies.

To report on the application of paper chromatography for pharmacopoeial purposes.

To report on the determination of water in crude drugs.

Dr. Hampshire agreed:

To report jointly with Dr. Miller on a minimum potency requirement for Gonadotrophinum Chorionicum and Gonadotrophinum Sericum.

To redraft the paragraph on rubber caps in the monograph on Injectiones and to draft a note explaining that bacteriostatics may interfere with the assays of injections.

## ANNEX I

To complete, in collaboration with WHO, the outstanding work on the revision of the proofs of Volume II.

To present the monographs and appendices on preparations of blood prepared jointly with Dr. Miller, Professor Hazard and Professor Heymans.

To report on the method provisionally adopted for the examination of colourlessness of a solution.

## Professor Hazard agreed:

To report whether part of the table in the Appendix "Determination of Blood Sugar" could be deleted.

To continue his work on the table of doses for children and the tables of usual and maximal doses for adults.

To prepare jointly with Dr. Hampshire, Dr. Miller and Professor Heymans the monographs and appendices on preparations of blood.

To report jointly with Professor van Os and Dr. Miller a report on suture materials.

To report on the examination of glass containers for injections by the methods provisionally adopted.

## Dr. Miller agreed:

To report jointly with Dr. Hampshire on a minimum potency requirement for Gonadotrophinum Chorionicum and Gonadotrophinum Sericum.

To report jointly with Dr. Canbäck on a section on colorimetry for the Appendix on Spectrophotometry and Photometry.

To report jointly with Professor Baggesgaard Rasmussen and Professor van Os on an assay for Compressi Diethylstilboestrolis.

To report jointly with Professor Baggesgaard Rasmussen and Professor van Os on a method of assay for Compressi Glycerylis Trinitratis proposed by Dr. Canbäck.

To report jointly with Professor Baggesgaard Rasmussen on an Appendix on Isotonic Solutions.

To supply methods of calculating potency in biological assays.

ANNEX I

- To report jointly with Professor Baggesgaard Rasmussen and Professor van Os on the method of assay for Injectio Physostigmini Salicylatis, Injectio Riboflavini and Injectio Strychnini Nitratis, proposed by Dr. Canbäck.
- To draft an Appendix on the Sarcina lutea technique for the determination of penicillin blood levels.
- To prepare jointly with Professor van Os and Dr. Canbäck draft specifications for reagents and a new list of reagents and test solutions for the Addendum and the Second Edition.
- To prepare jointly with Dr. Hampshire, Professor Hazard and Professor Heymans the monographs and appendices on preparations of blood.
- To present a report, prepared jointly with Professor Hazard and Professor van Os on suture materials.
- To present a report, prepared jointly with Dr. Canbäck, on a general procedure for titrations in non-aqueous media.

Professor van Os agreed:

- To report jointly with Professor Baggesgaard Rasmussen and Dr. Miller on an assay for Compressi Diethylstilboestrolis.
- To report jointly with Professor Baggesgaard Rasmussen and Dr. Miller on a method of assay for Compressi Glycerylis Trinitratis proposed by Dr. Canbäck.
- To report jointly with Professor Baggesgaard Rasmussen and Dr. Miller on the assays of Injectio Hyoscini Hydrobromidi and Injectio Lobelini Hydrochloridi, proposed by Dr. Canbäck.
- To report jointly with Professor Baggesgaard Rasmussen and Dr. Miller on the method of assay for Injectio Physostigmini Salicylatis, Injectio Riboflavini and Injectio Strychnini Nitratis, proposed by Dr. Canbäck.
- To complete the list of reagents and test solutions for Volume II.
- To present draft specifications for reagents and a new list of reagents and test solutions for the Addendum and Second Edition, prepared jointly with Dr. Canbäck and Dr. Miller.
- To report jointly with Dr. Miller and Professor Hazard on suture materials.
- To report on the method provisionally adopted for the examination of colourlessness of a solution.

ANNEX II

LIST OF MONOGRAPHS AND APPENDICES SUBMITTED FOR INCLUSION IN  
THE PHARMACOPOEA INTERNATIONALIS - FIRST EDITION  
VOLUME II AND ADDENDUM OR IN SECOND EDITION

LISTE DES MONOGRAPHIES ET DES APPENDICES PRESENTES EN VUE  
DE LEUR INSERTION DANS LA PHARMACOPEE INTERNATIONALE  
PREMIERE EDITION, VOLUME II, ET ADDENDUM OU DANS  
LA DEUXIEME EDITION

Acetylcholinii Chloridum  
Acidum Aminoaceticum  
Acidum Folicum  
acidum Lacticum  
Acidum Para-aminosalicylicum  
Acidum Undecylenicum  
Adrenalini Bitartras  
Aethanolum  
Aethanolum Absolutum  
Aethanolum Dilutum  
Aethylenediamini Hydras  
Aethylis Hydnocarpas  
Aethinyloestradiolum  
Amodiaquini Hydrochloridum  
Antazolini Hydrochloridum  
Aqua Destillata  
Aqua pro Injectione  
Arterenoli Bitartras  
Aureomycini Hydrochloridum  
Benzylpenicillinum Kalicum  
Benzylpenicillinum Natricum  
Bismuthi et Kalii Tartras  
Bismuthi Subnitras  
Calcii Chloridum  
Calcii Saccharas  
Chloramphenicolum  
Chlorobutanolum  
Chlorobutanolum Hydratum  
Chlorocresolum  
Chlorophenothanum Technicum  
Cholinii Chloridum  
Compressi  
Compressi Acidi Acetylsalicylici  
Compressi Acidi Ascorbici

Compressi Aethisteroni  
Compressi Amidopyrini  
Compressi Aminophyllini  
Compressi Amphetamini Sulfatis  
Compressi Atropini Sulfatis  
Compressi Barbitali  
Compressi Barbitali Natrici  
Compressi Calcii Gluconatis  
Compressi Calcii Lactatis  
Compressi Carbacholi  
Compressi Carbarsoni  
Compressi Chiniofoni  
Compressi Chloroquini Diphosphatis  
Compressi Codeini Phosphatis  
Compressi Colchicini  
Compressi Dicoumaroli  
Compressi Diethylstilboestrol  
Compressi Digitalis  
Compressi Digoxini  
Compressi Digitoxosidi  
Compressi Ephedrini Hydrochloridi  
Compressi Ergometrini Maleatis  
Compressi Ergotamini Tartratis  
Compressi Ferrosi Sulfatis  
Compressi Glyceryli Trinitratis  
Compressi Hydrargyri Subchloridi  
Compressi Hydromorphoni Hydrochloridi  
Compressi Hyoscini Hydrobromidi  
Compressi Lanatosidi C  
Compressi Menadioni  
Compressi Mepacrini Hydrochloridi  
Compressi Methyltestosteroni  
Compressi Natrii Salicylatis  
Compressi Neostigmini Bromidi  
Compressi Nicotinamidi  
Compressi Obducti  
Compressi Oestradioli  
Compressi Pethidini Hydrochloridi  
Compressi Phenacetini  
Compressi Phenobarbitali  
Compressi Phenobarbitali Natrici  
Compressi Proguanili Hydrochloridi  
Compressi Quinidini Sulfatis  
Compressi Quinini Hydrochloridi  
Compressi Riboflavini  
Compressi Santonini  
Compressi Succinylsulfathiazoli  
Compressi Sulfadiazini  
Compressi Sulfaguanidi  
Compressi Sulfamerazini  
Compressi Sulfanilamidi  
Compressi Sulfathiazoli

## ANNEX II

Compressi Theobromini Natrici et Natrii Acetatis  
Compressi Thiamini Hydrochloridi  
Compressi Hydrobromidum  
Compressi Cortisoni Acetas  
Compressi Cyanocobalaminum  
Compressi Cyclopropanum  
Compressi Dextranum Hydrolysatum  
Compressi Dichlorophenarsini Hydrochloridum  
Compressi Digitoxosidum  
Compressi Dihydrostreptomycinum  
Compressi Dimercaprolum  
Compressi Diphenhydramini Hydrochloridum  
Compressi Gallamini Triethiodidum  
Compressi Glucosum  
Compressi Glycerolum  
Compressi Glycerolum Dilutum  
Compressi Gonadotrophinum Chorionicum  
Compressi Gonadotrophinum Sericum  
Compressi Hexobarbitalum  
Compressi Hexobarbitalum Natricum  
Compressi Hydrocodoni Bitartras  
Compressi Hydromorphoni Hydrochloridum  
Compressi Iniectiones  
Compressi Iniectio Adrenalini  
Compressi Iniectio Aminophyllini  
Compressi Iniectio Apomorphini Hydrochloridi  
Compressi Iniectio Arterenoli  
Compressi Iniectio Atropini Sulfatis  
Compressi Iniectio Bismuthi Subsalicylatis  
Compressi Iniectio Calcii Gluconatis  
Compressi Iniectio Carbacholi  
Compressi Iniectio Coffeini et Natrii Benzoatis  
Compressi Iniectio Coffeini et Natrii Salicylatis  
Compressi Iniectio Desoxycortoni Acetatis  
Compressi Iniectio Diethylstilboestrolis  
Compressi Iniectio Digoxini  
Compressi Iniectio Dihydrostreptomycini  
Compressi Iniectio Dimercaprolis  
Compressi Iniectio Emetini Hydrochloridi  
Compressi Iniectio Ergometrinis Maleatis  
Compressi Iniectio Ergotamini Tartratis  
Compressi Iniectio Glucosi  
Compressi Iniectio Heparini  
Compressi Iniectio Histamini Phosphatis  
Compressi Iniectio Hydromorphoni Hydrochloridi  
Compressi Iniectio Hyoscini Hydrobromidi  
Compressi Iniectio Insulini  
Compressi Iniectio Insulini Globinatis cum Zinco  
Compressi Iniectio Insulini Protaminatis cum Zinco  
Compressi Iniectio Lanatosidi C  
Compressi Iniectio Lobelini Hydrochloridi

Injectio Menadioni  
Injectio Mepacrini Methanosulfonatis  
Injectio Mersalyli et Theophyllini  
Injectio Morphini  
Injectio Natrii Chloridi  
Injectio Natrii Chloridi Composita  
Injectio Natrii Lactatis Composita  
Injectio Neostigmini Methylsulfatis  
Injectio Nicethamidi  
Injectio Nicotinamidi  
Injectio Oestradioli Benzoatis  
Injectio Oestrone  
Injectio Ouabaini  
Injectio Papaverini Hydrochloridi  
Injectio Benzylpenicillini  
Injectio Pentetrazoli  
Injectio Pethidini Hydrochloridi  
Injectio Phenobarbitali Natrici  
Injectio Physostigmini Salicylatis  
Injectio Physostigmini Sulfatis  
Injectio Picrotoxini  
Injectio Procaini Benzylpenicillini Aquosa  
Injectio Procaini Benzylpenicillini cum Benzylpenicillino  
Injectio Procaini Benzylpenicillini Oleosa  
Injectio Procaini Hydrochloridi  
Injectio Progesteroni  
Injectio Riboflavini  
Injectio Stibii et Kalii Tartratis  
Injectio Stibii et Natrii Tartratis  
Injectio Stibii et Natrii Thioglycollatis  
Injectio Stibopheni  
Injectio Streptomycini et Calcii Chloridi  
Injectio Streptomycini Hydrochloridi  
Injectio Streptomycini Sulfatis  
Injectio Strychnini Nitratis  
Injectio Sulfadiazini Natrici  
Injectio Sulfamerazini Natrici  
Injectio Sulfathiazoli Natrici  
Injectio Testosteroni Propionatis  
Injectio Tetracaini Hydrochloridi  
Injectio Thiopentali Natrici cum Natrii Carbonate  
Injectio Tryparsamidi  
Injectio Tubocurarin Chloridi  
Isoprenalini Hydrochloridum  
Isoprenalini Sulfas  
Kalii Chloridum  
Mepyramini Maleas  
Methadoni Hydrochloridum  
Methioninum  
Metoponi Hydrochloridum

## ANNEX II

Natrii Chloridum  
Natrii Nitris  
Natrii Para-aminosalicylas  
Natrii Pyrosulfis  
Oleum Hydnocarpi  
Oxophenarsini Hydrochloridum  
Oxycodoni Hydrochloridum  
Pentamidini Dimethylsulfonas  
Phenylhydrargyri Boras  
Phenylhydrargyri Nitras  
Podophylli Resina  
Procaini Benzylpenicillinum  
Procaini Benzylpenicillinum cum Benzylpenicillino  
pro Iniectione  
Procaini Benzylpenicillinum pro Iniectione  
Profenamini Hydrochloridum  
Promethazini Hydrochloridum  
Propylthiouracilum  
Solutio Acidi Citratis Glucosi Anticoagulans  
Solutio Natrii Chloridi Composita  
Solutio Natrii Chloridi Isotonica  
Solutio Natrii Citratis Anticoagulans  
Solutio Natrii Lactatis Composita  
Streptomycini et Calcii Chloridum  
Streptomycini Hydrochloridum  
Streptomycini Sulfas  
Suraminum Natriicum  
Terramycini Hydrochloridum  
Thyroidea  
Tincturae  
Tinctura Aconiti  
Tinctura Belladonnae  
Tinctura Colchici  
Tinctura Hyoscyami  
Tinctura Ipecacuanhae  
Tinctura Scillae  
Tinctura Stramonii  
Tinctura Strychni  
Trichloroethylenum  
Trihexyphenyldium  
Tripeleammamini Hydrochloridum  
Tubocurarinum Chloridum  
Tyrothricinum  
Urethanum

Whole Human Blood  
Concentrated Red Blood Corpuscles  
Liquid Human Plasma (including frozen plasma)  
Dried Human Plasma  
Liquid Human Serum  
Dried Human Serum  
Bovine Thrombin

Appendices

List of Reagents and Test Solutions for Volume II  
Solutions Employed in Volumetric Determinations for Volume II  
Buffer Solutions and the Determination of pH  
Fluorometry  
Spectrophotometry and Photometry  
Determination of Colourlessness of a Solution  
Limit Test for Arsenic for Volume II  
Limit Test for Lead and Limit Test for Heavy Metals for Volume II  
Limit Test for Iron  
Determination of Methoxyl  
Determination of Water  
International Standard Preparations  
Biological Assay of Aureomycin  
Biological Assay of Benzylpenicillin  
Biological Assay of Chorionic Gonadotrophin  
Biological Assay of Injection of Insulin  
Biological Assay of Injection of Globin Zinc Insulin  
Biological Assay of Injection of Protamine Zinc Insulin  
Determination of Blood Sugar  
Determination of Zinc in Injection of Insulin and Injection  
of Protamine Zinc Insulin  
Biological Assay of Dihydrostreptomycin  
Biological Assay of Serum Gonadotrophin  
Biological Assay of Streptomycin  
Biological Assay of Tubocurarine Chloride  
Test for Freedom from Abnormal Toxicity of Dimercaprol  
Test for Pyrogens  
Test for Sterility for Dihydrostreptomycin  
Test for Sterility for Streptomycin  
Isotonic Solutions  
Tests for Glass Containers for Injections  
Determination of ABO and Rh Groups  
Standards for ABO and Rh Grouping Sera  
Table of Usual and Maximal Doses for Adults for Volume II  
Table of Usual Doses of Drugs for Children

Special Section

Solutions of Cardiolipin and Lecithin for Serological Tests